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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	09/458,883	
	Filing Date	December 10, 1999	
	First Named Inventor	Puzak, et al.	
	Art Unit	2124	
	Examiner Name	Todd Ingberg	
Total Number of Pages in This Submission	6	Attorney Docket Number	YO999-589

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
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In re Application of	:	Thomas PUZAK	<b>OCT 22 2003</b> <b>Technology Center 2100</b>
Application Number	:	09/458,883	
Attorney Docket Number	:	YOR999-589	
Group Art Unit	:	2124	
Filed	:	12/10/1999	
Examiner	:	Wood, William H.	
For: Prefetching Using Future Branch Path Information Derived from Branch Prediction			

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313

**REPLY TO EXAMINER'S ANSWER**

Sir:

This is a Reply to the Examiner's Answer mailed August 12, 2003 in the above-identified patent application. It is believed that no additional fee is required with this submission. However, should an additional fee be required, the Commissioner is hereby authorized to charge the fee to Deposit Account No. 50-0510.

Appellants have appealed the final rejection of claims 1, 3-12, and 14-22 in the Office Action mailed December 17, 2002 in the above-identified patent application. A Notice of Appeal was mailed on March 17, 2002. An Appeal Brief was mailed on May 27, 2003. An

Examiner's Answer was mailed on August 12, 2003.

**(6) ISSUES ON APPEAL**

The issue presented on appeal is:

Whether claims 1, 3-12, and 14-22 were properly rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,742,804 to Yeh, et al.

**(8) ARGUMENTS**

Appellants affirm all of the arguments made in the Appeal Brief.

Response to Examiner's Arguments

Yeh does not disclose or suggest all elements of the claims at issue. The Examiner concedes that Yeh does not disclose the claim limitation of prefetching data but contends that it would have been obvious to prefetch data because Yeh discusses prefetching instructions. The conclusion of obviousness reads as follows: "Yeh did not explicitly state prefetching data. However, Yeh did allude to this concept of the prefetch instruction prefetching data to be operated on in column 1, lines 22-25. Here, Yeh states both instructions and data are needed to keep the computer running efficiently. Clearly if the instructions are being prefetched, the data for those instructions would need to be prefetched as well in order to keep up with the continual stream of operation. Furthermore, Yeh fetches data in that instructions contain explicit operands or the addresses to additional data (the addresses are data). It would have been obvious to one of ordinary skill in the art to implement instructions with explicit data (i.e. a constant) or addresses to other data in Yeh. This would be obvious because this is essentially common practice for what memory access instructions do." The

quoted language states that Yeh “fetches” data but that does not imply that Yeh prefetches data as claimed. Throughout prosecution the Examiner has failed to introduce any evidence in support of this conclusion. In the Answer, the Examiner now states that “This would be obvious because this is essentially common practice for what memory access instructions do.” Again, no evidence is cited for this contention. Applicant therefore traverses this assertion under M.P.E.P Section 2144.03 and demands evidence of the assertion. This demand is seasonable because this is the first time during prosecution that the Examiner’s statement is being offered in support for the conclusion of obviousness.

The Answer is replete with *ad hominem* attacks on Applicant’s knowledge and understanding of the invention or the prior art. For example, at page 11 the Answer states “Due to a fundamental lack of understanding concerning the art of Branch Prediction, Appellant is simply incorrect on the first issue” and at page 12, the Answer states “Appellant’s arguments are beneath one of ordinary skill in the art concerning branch prediction and do not even represent an understanding of Appellant’s own invention much less the cited prior art Yeh.” Such statements are not only wholly irrelevant from a legal perspective (there is no legal requirement that the applicant possess ordinary skill in the art or even understand his invention; See, e.g., Raytheon Co. v. Roper Corp., 724 F.2d 951, 220 U.S.P.Q. 592 (Fed. Cir. 1983)) but are especially impertinent and insulting to Applicants who are inventors in numerous United States Patents in the general area of prefetching and branch prediction. If the Applicant’s statements were incorrect the Examiner should have attacked the merit of those statements pointing out their alleged lack of merit and producing evidence in support as

is required to establish a *prima facie* case of obviousness. Apparently unable to do this, the Examiner now resorts to irrelevant attacks on the proponent of the arguments instead of the arguments themselves. The Board should strike and disregard these comments of the Examiner.

Notwithstanding the inappropriateness of the arguments regarding Appellant's statements, most of the conclusions by the Examiner regarding Yeh are wrong and Appellants request that the Board consider the following remarks on their merits. The argument set forth by the Examiner that if one prefetches instructions then data is being prefetched is incorrect. Using the example cited by the Examiner, an instruction adding two elements A1 and B1: ADD A1 B1. If the instruction is prefetched the data required to execute this instruction is not prefetched using Yeh. For example, when the ADD instruction is prefetched, the data required to execute this instruction (the contents of A1 and B1) have not been prefetched. In fact, the address for A1 and B1 is usually specified in a machine language format (contained in the instruction image) that requires the addition of a Base Register, Index Register, and Displacement to produce the address of A1. A similar addition of a Base and Index register and Displacement are needed to produce the address of B1. Only after these values (addresses) are known can the contents of A1 and B1 be fetched. The contents of these addresses (for A1 and B1) are the data that is needed before the ADD can execute. Yeh does not deal with prefetching data yet the instant application does, even by the Examiner's own admissions.

The claimed branch history defining a path is obtained prior to the prefetch instruction which is much earlier in the pipeline than the branch history used by Yeh. By obtaining the branch history path prior to Yeh, the invention is able to void all unnecessary prefetches and obtain improved processor performance. There is nothing in Yeh that teaches or suggests such a mechanism. Yeh simply states that "the predict results of the branch are dynamically obtained from the branch prediction unit of the microprocessor." To believe that this includes the obtaining of a branch history in the claimed timing is to believe that all future dynamic branch prediction inventions are also taught by Yeh and clearly that should not be the case.

At page 16 the Examiner admits to using hindsight reasoning but attempts to justify such reasoning by arguing that the use of hindsight is justified if it takes into account only knowledge that was within the level of ordinary skill in the art at the time the claimed invention was made. In this case, the Examiner has failed to produce any evidence whatsoever as to what those skilled in the art would or would not have known or found obvious. Instead, as is evidenced even in the Answer, the Examiner relies only on his own knowledge (which he now irrelevantly argues is better than that of the inventors). Such use of hindsight is improper and should be reversed.

The Answer contends that "Appellants fail even to discuss the previous rejection of col. 6, lines 28-37." Appellants respectfully point out that the cited part of Yeh is not a rejection and that Appellants have clearly and sufficiently pointed out the errors in the rejection of

claim 4 and there has been no concession.

The Examiner now contends that "Appellant merely alleges [sic, that] the rejection is in error without actually citing knowledge that would refute the rejection." Answer at page 13.

Contrary to what the Examiner now contends, the Appellant's Brief specifically states and discusses various reasons why the Examiner has not made out a case of *prima facie* obviousness as a matter of law and the burden is on the United States Patent and Trademark Office to make such a case and it has failed to do so in this matter. Absent a *prima facie* case Appellants are not required to rebut the rejection with any evidence.

**(9) SUMMARY AND CONCLUSION**

For the foregoing reasons and those set forth in the Appeal Brief, Appellants submit that the claims at issue are patentable and that the final rejection should be reversed.

Respectfully submitted,

Date: October 14, 2003

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